

No. 871,494.

PATENTED NOV. 19, 1907.

W. D. FOSS.  
BRUSH.

APPLICATION FILED JULY 18, 1906.

Fig. 1.

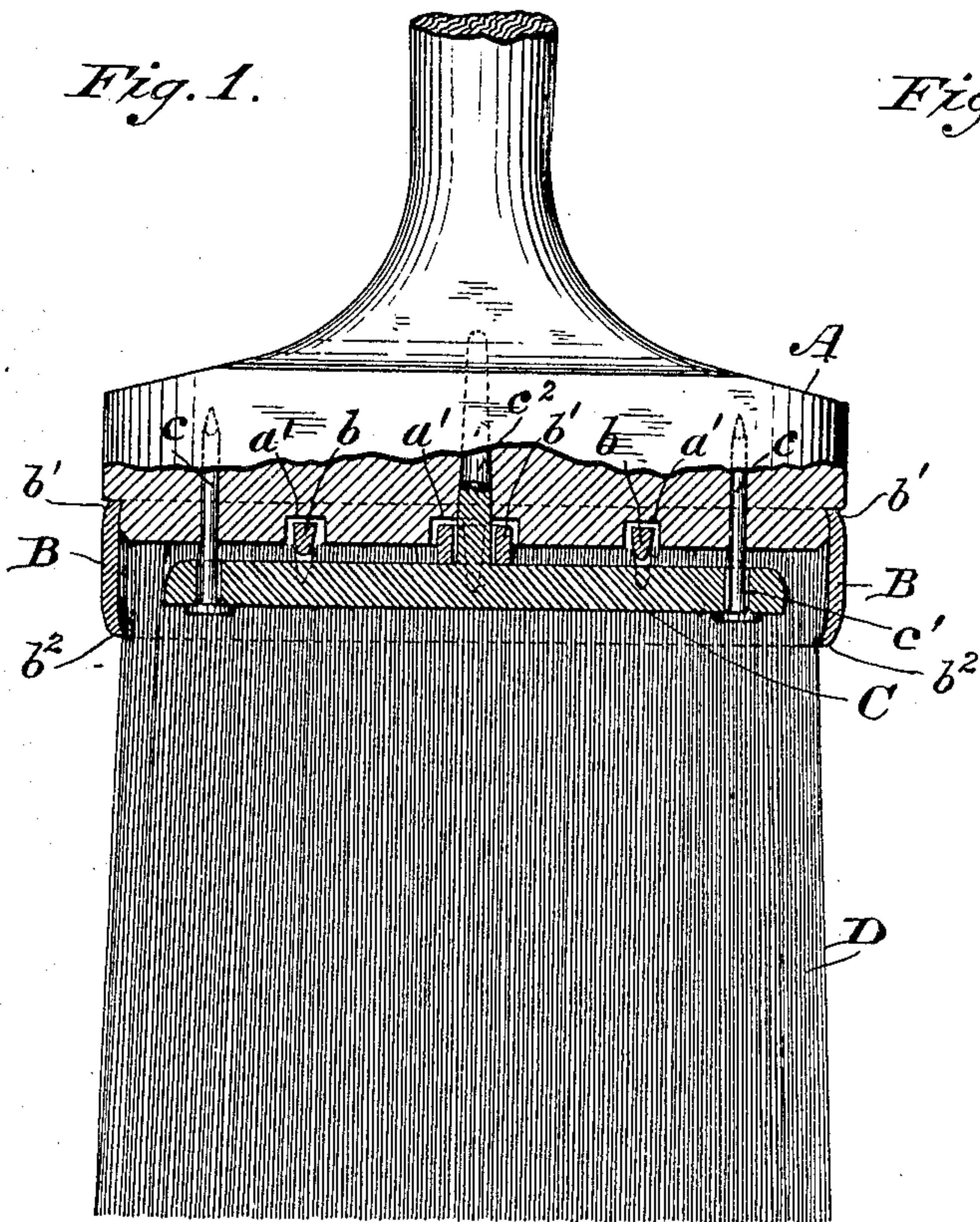


Fig. 2.

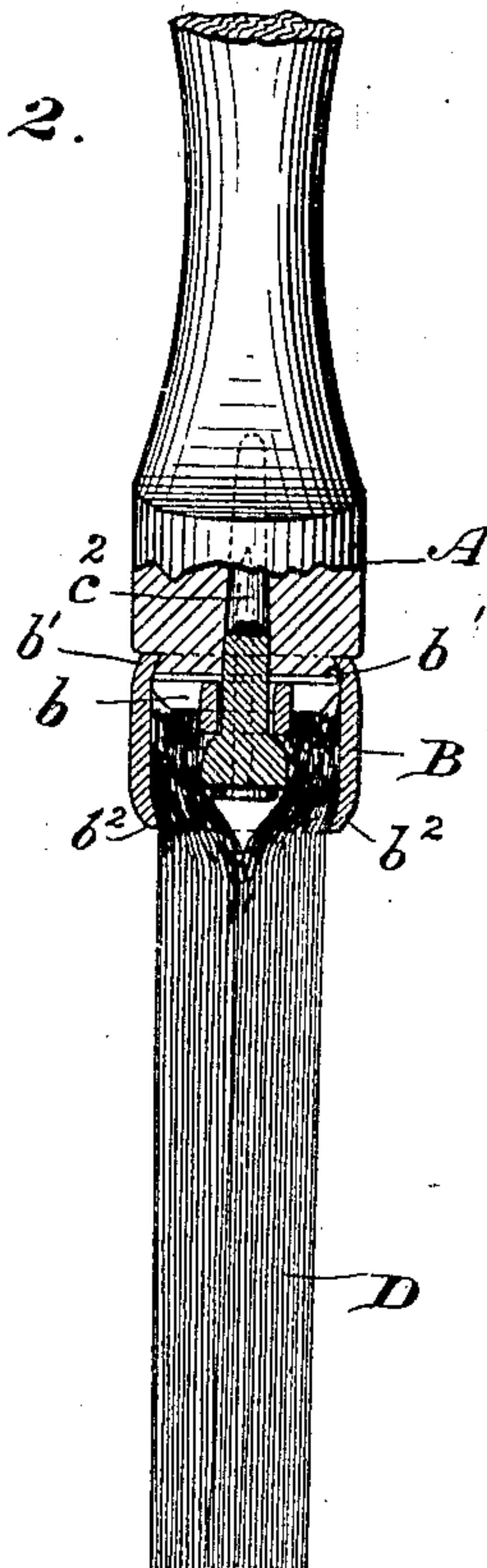


Fig. 4.

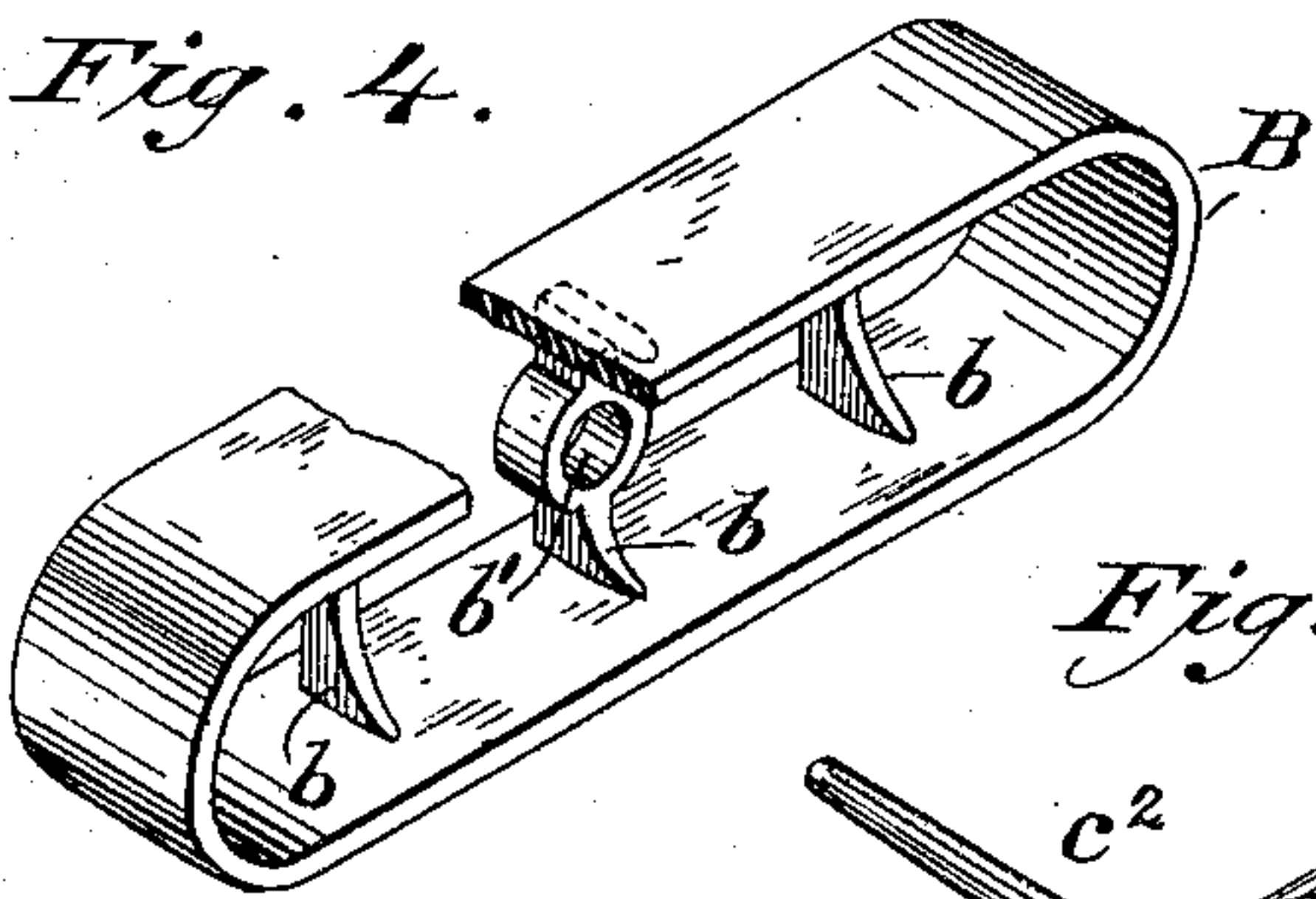


Fig. 3.

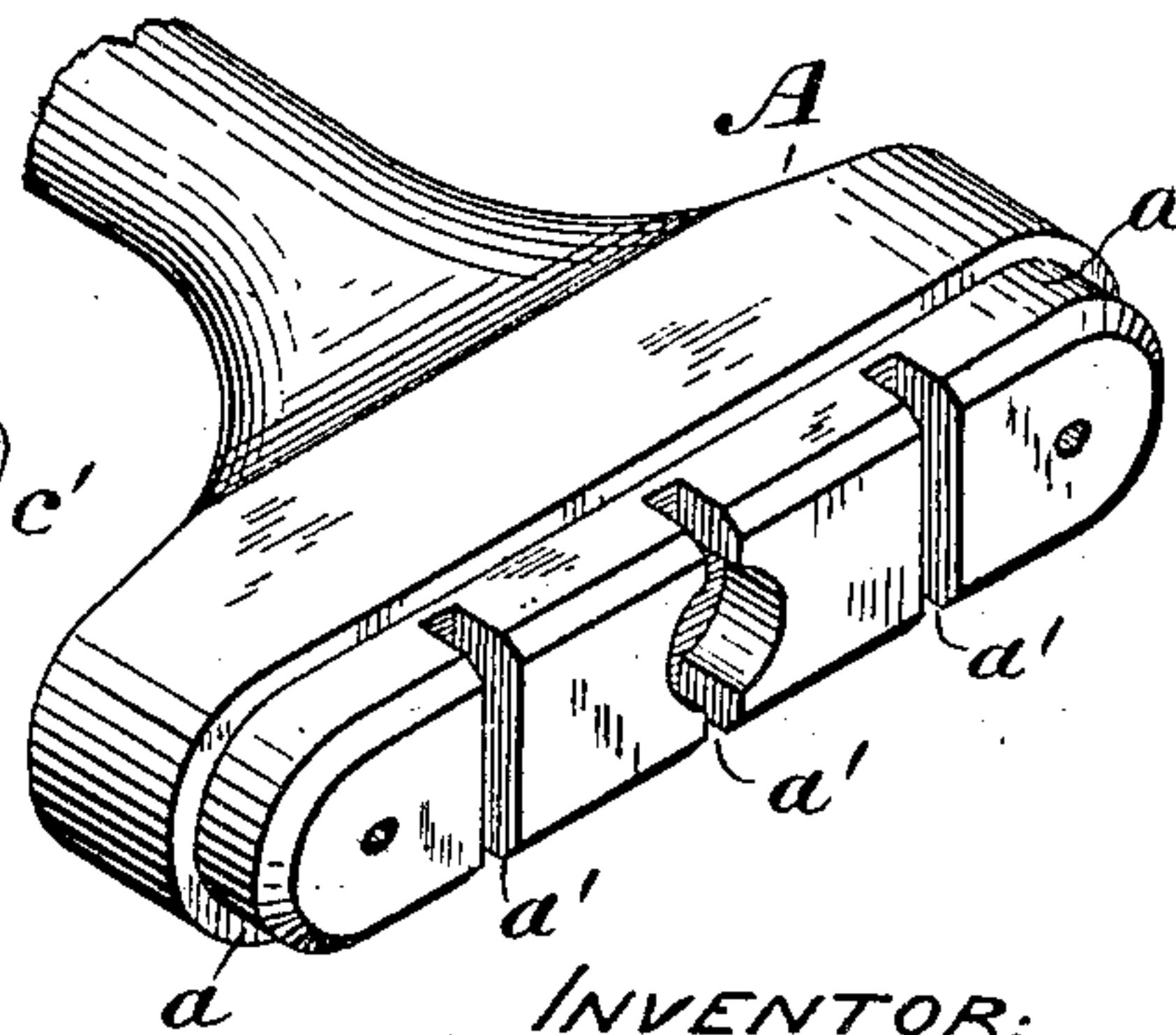
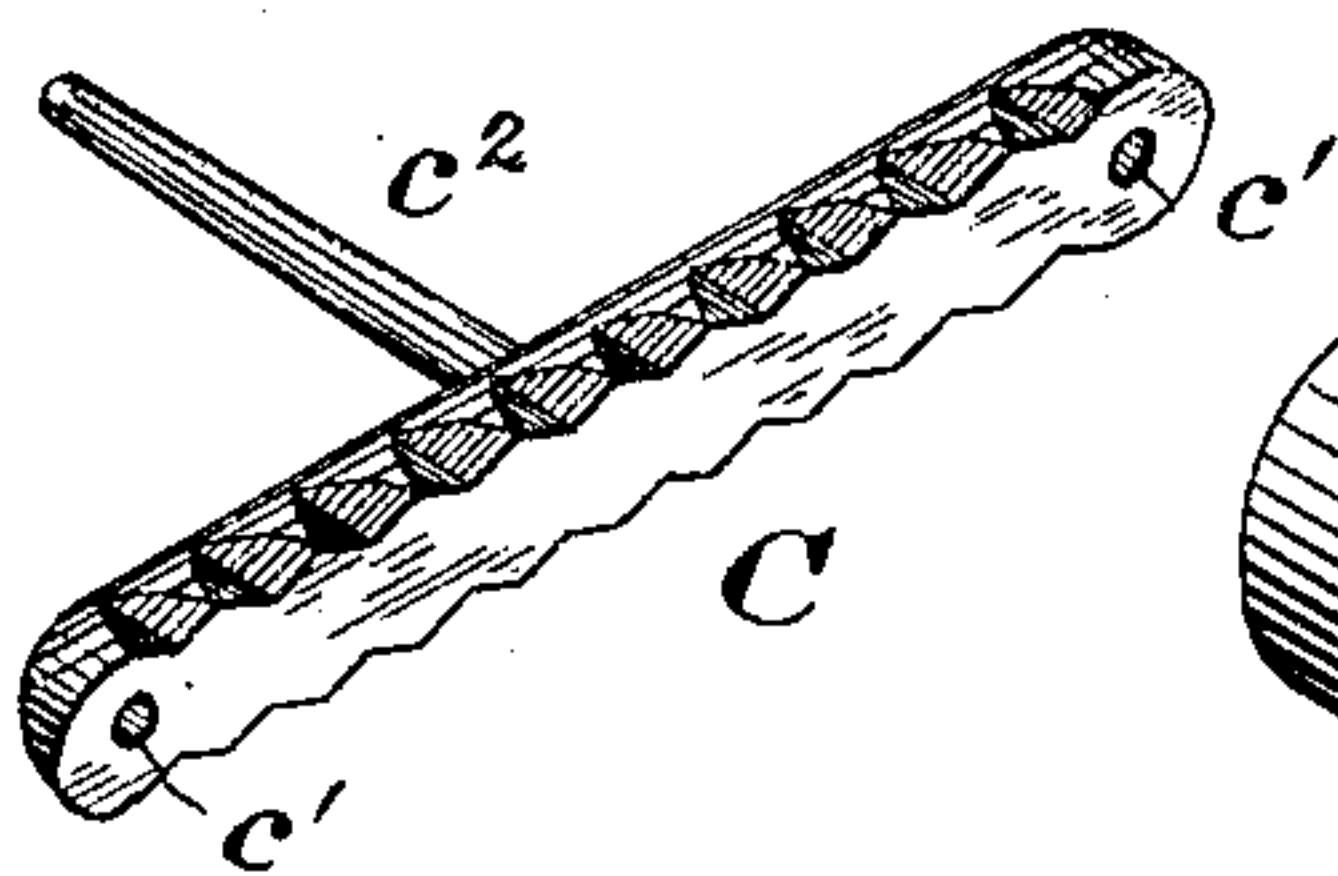


Fig. 5.



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# UNITED STATES PATENT OFFICE.

WALTER D. FOSS, OF WOOSTER, OHIO.

BRUSH.

No. 871,494.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed July 18, 1906. Serial No. 326,669.

*To all whom it may concern:*

Be it known that I, WALTER D. FOSS, a citizen of the United States, resident of Wooster, county of Wayne, and State of Ohio, have invented a new and useful Improvement in Brushes, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to brushes such as are used for painting, calcimining and the like.

It has particular reference to the construction of flat brushes of the above class, the object being to provide a flat brush that will embody the good features recognized and appreciated by all master painters and practical mechanics as being inherent in the solid center brush, while still retaining the more easily and cheaply constructed split center design. To this end it becomes necessary to so construct the brush that when it is being worked backward and forward in spreading paint or varnish, the wall of bristles on one side of the opening in the center of the brush will press against and support the opposite wall of bristles. At the same time I aim to retain the simple and inexpensive methods of manufacture that have heretofore prevailed.

To the accomplishment of the above and related objects, said invention consists of means hereinafter fully described and particularly set forth in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing: Figure 1 represents a vertical longitudinal cross-section of a brush embodying my improvements; Fig. 2 represents a vertical transverse cross-section of the same; while Figs. 3, 4, and 5 are perspective views of parts that enter into the brush structure, Fig. 3 showing the handle-base, Fig. 4 the ferrule, and Fig. 5 the binding-wedge, all as they appear previous to being assembled.

The elements just referred to as entering into the construction of my brush, namely the handle-base A, the ferrule B, and the binding-wedge of plug C, have, I am aware, been used in one form or another for some time past in brushes of the description in

hand. It is hence to their particular form and combination that I ascribe the valuable results presently to be set forth. For as heretofore used, the effect of binding-wedge C has been to spread the bristles apart, rather than to have them hug closely together as they should to produce the best results.

In a flat brush, an approved form for handle-base A is that shown, where such head is of the elongated form appearing in Fig. 3, and is provided with a rabbet *a* extending entirely around its periphery. This rabbet is designed to receive the ferrule B, which should fit tightly thereon, and is provided with one or more transverse webs *b* that register in corresponding slots or seats *a'* in the handle-head. Ferrule B would ordinarily be made of soft annealed, malleable iron or other metal that will readily lend itself to the subsequent manipulation involved in the making of my brush. Binding-wedge or plug C serves both to secure ferrule B in place and to tightly wedge the bristles D, Figs. 1 and 2, against the sides of such ferrule. Such wedge is a perfectly solid and rigid metal bar of which the width and length are gaged with respect to the corresponding internal dimensions of the ferrule so as to cause it to drive very tightly when the bristles have been inserted in the course of the assembling operation. Its sides are further preferably corrugated, as shown in Fig. 5. When it has been driven into place, it should lie some distance, *e. g.*  $\frac{3}{16}$  or  $\frac{1}{4}$  of an inch, above the lower edge of the ferrule, the exact distance depending upon the width of the brush in question. Wedge C may be held in place by nails *c* passing through apertures, as *c'*, therein, and assisted by one or more prongs *c''* formed integral with the same. At least one such integral prong is desirable, inasmuch as the accurate centering of the wedge is thereby greatly facilitated, the ferrule B having the intermediate of transverse webs *b* centrally disposed and formed with an aperture *b'* through which prong *c* passes.

To assemble the parts thus described, I secure the ferrule B, containing the bristles D and previously fitted onto the handle-base A, in a vise-like clamping device so that such ferrule may not burst during the process of forcing wedge C into position. This latter step is conveniently accomplished thereupon by the use of an arbor press or like means. Assuming that a wedge with but a



single prong  $c'$ , as in the case shown, is employed, nails  $c$  will have next to be inserted and driven home, or, if desired, screws may be used instead. It will be recalled that the wedge when thus in position lies wholly above the lower edge of the ferrule and preferably a full  $\frac{1}{4}$  of an inch thereabove. The last and more important step, which then follows, consists in turning in or beveling both edges of the ferrule by passing the whole brush through a simple rolling machine having bevel-edged rolls, such, for instance, as are employed in connection with tinner's seam rollers. The results of this beveling operation are clearly shown in Figs. 1 and 2. By turning in the upper edge of the ferrule in the manner described, such ferrule is effectually clamped to the handle-base thereto. Indeed, the use of prongs on wedge C, or of nails or screws in connection with the same, could well be dispensed with so far as regards the purpose of merely fastening the ferrule and handle together. However, since the driving home of the wedge must necessarily precede the beveling of the ferrule it becomes necessary to provide some means, such as the ones indicated, to hold the parts together. Such prongs and nails, moreover, add to the general solidity of the structure, as can be readily seen.

The effect of beveling the lower, or bristle, edge of the ferrule, is to cause the two walls of bristles on either side of the central opening caused by wedge C to quickly converge to form a practically solid brush. At the same time the root ends of the bristles are, as it were, dovetailed in between the ferrule and the wedge in such a way as to make it impossible for either the wedge to become displaced or the brush to "shed" bristles in the

manner so annoying to painters. It is to this last-mentioned feature, then, that I would call particular attention, for through it I secure the desirable results earlier pointed out. The two walls of bristles hug closely together and even in applying varnish or other coatings of like tenacious nature the bristles remain pressed against each other and the tendency to "finger" or "swallow-tail" is thus minimized.

Having thus described my invention in detail, that which I particularly point out and distinctly claim is:

In a flat brush, the combination with a handle-base having a rabbet extending entirely around its periphery, of a ferrule surrounding said rabbet portion and fitted thereto, bristles having their root ends contained within said ferrule, and a solid binding wedge having corrugated sides and an integral centering and securing prong, said wedge being attached to the bottom of said handle-base and lying wholly above the lower inwardly extended edge of said ferrule, said ferrule having its upper edge turned in so as to be dovetailed to said rabbet portion of the handle-base and its lower edge likewise turned in whereby the bristles on opposite sides of said wedge are caused to converge, the ferrule being also provided with a plurality of integral transverse webs, the central web having an aperture therethrough to receive and form a bearing for said centering prong carried by the binding-wedge, all substantially as described and for the purposes set forth.

Signed by me, this 23d day of June 1906.  
WALTER D. FOSS.

Attested by—

G. W. SAYWELL,  
JNO. F. OBERLIN.